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09/749,663	12/28/2000	Deog Jae Lee	1689-0156P	8705

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EXAMINER

LAO, LUN S

ART UNIT PAPER NUMBER

2643

DATE MAILED: 10/05/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b> 09/749,663	<b>Applicant(s)</b> LEE, DEOG JAE	
	<b>Examiner</b> Lun-See Lao	<b>Art Unit</b> 2643	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
  - If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
  - If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
  - Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 11 August 2004.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-14 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-14 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

## DETAILED ACTION

### *Introduction*

1. This is response to the amendment filed on 08-11-2004. Claim 1-9 have been amended and new claims 10-14 have been added. Claims 1-14 are pending.

### ***Claim Rejections - 35 USC § 102***

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 1-2 are rejected under 35 U.S.C. 102(b) as being anticipated by Tanaka (US PAT. 5,446,790).

Consider claim 1 Tanaka teaches an acoustic wave sensor (see fig.1, 4) for detecting a contact state between an exhaust or intake valve (15) and a valve seat in a cylinder body of a vehicle engine (11) comprising an acoustic wave generating means (3) and an acoustic wave sensing means (4) (see col. 2 line 15-68).

Consider claim 2 Tanaka teaches the acoustic wave generating means (see fig.3) is inherently includes of an acoustic wave oscillator, a first amplifier (see fig.1, output circuit, 56) for amplifying the acoustic wave of the acoustic wave oscillator, and a speaker (see fig.1,3) for outputting the acoustic wave of the first amplifier (see fig.1, 56)(see col.2 line 15-col.3 line 5).

***Claim Rejections - 35 USC § 103***

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 3 and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tanaka (US PAT. 5,446,790) in view of Tomisawa (US PAT. 5,850,458) and Fischer (US PAT. 5,748,748).

Consider claim 3 Tanaka teaches the acoustic wave sensing means (see fig.1, 4 12,46) includes an acoustic wave sensing part for sensing an acoustic wave outputted from a speaker (3) and converting the acoustic wave into an electric signal (see col.2 lines 15-47), but Kanaka does not clearly teaches a second amplifier for amplifying a signal of the acoustic wave sensing part, and a display part for displaying a signal output from the second amplifier.

However, Tomisawa teaches a second amplifier (see fig.8, 51) for amplifying a signal of the acoustic wave sensing part (46) (see col.6 line 44-col.7 line 15),

Therefore, it would have been obvious to one of ordinary skill in the art to utilize the teaching of Tanaka into Tomisawa to provide more efficiency for the active noise reducing method.

On the other hand, Fischer teaches a display part for displaying (see fig.5, 258) a signal output from the second amplifier (218, see col.10 line 55-col.11 line 25).

Therefore, it would have been obvious to one of ordinary skill in the art to utilize the teaching of Tanaka into Fischer to provide a conventional display device for friendly using.

Consider claim 9 Tomisawa teaches the acoustic wave sensing part comprises a condenser microphone for sensing the acoustic wave (see fig.7, 46 and col.6 lines 43-65).

6. Claims 4, 7 and 10-11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tanaka (US PAT. 5,446,790) in view of Izutani (US PAT. 5,664,548).

Consider claim 4 Tanaka teaches the acoustic wave sensor for detecting a contact state between the exhaust or the intake valve and the valve seat in the cylinder body (see fig.1, 11) of the vehicle engine, wherein a speaker (see fig.1, 3) is installed at a bending portion of a tubular passage, but Tanaka does not clearly teaches a acoustic wave sensing part is installed at a site under the contact surface between the exhaust or the intake valve and the valve seat.

However, Izutani teaches an acoustic wave sensing part (see fig.1, 17) is installed at a site under the contact surface between the exhaust (83) or the intake valve (93) and the valve seat (83) (see col.6 line 10-20).

Therefore, it would have been obvious to one of ordinary skill in the art to utilize the teaching of Tanaka into Izutani to provide a trouble-detection apparatus, for egr system comprising an EGR control valve in an EGR passage, which is capable of correctly detecting trouble in the EGR system by the detection of clogging of the EGR passage,

irrespective of the pressure variation in the intake system in accordance with the rotation speeds or loads of the engine.

Consider claim 10 Tanaka teaches an acoustic wave sensor for detecting a contact state between an exhaust or an intake valve and a valve seat of a valve train of a vehicle engine comprising (see fig.1):

an acoustic wave generating means (see fig.1, 3) and an acoustic wave sensing means (4), the acoustic wave generating means (3) including a sound emitting device disposed in a manifold of the vehicle engine (11), and the acoustic wave sensing means (4) including an acoustic wave sensing part for sensing an acoustic wave outputted from the speaker and converting the acoustic wave into an electric signal (see col.2 line 15-68), but Tanaka does not clearly teach the acoustic wave sensing part being installed under a contact surface between the exhaust or the intake valve and the valve seat.

However, Izutani teaches an acoustic wave sensing part (see fig.1, 17) is installed at a site under the contact surface between the exhaust (83) or the intake valve (93) and the valve seat (83) (see col.6 line 10-20).

Therefore, it would have been obvious to one of ordinary skill in the art to utilize the teaching of Tanaka into Izutani to provide a trouble-detection apparatus, for egr system comprising an EGR control valve in an EGR passage, which is capable of correctly detecting trouble in the EGR system by the detection of clogging of the EGR passage, irrespective of the pressure variation in the intake system in accordance with the rotation speeds or loads of the engine.

Consider claim 11, Tanaka teaches the acoustic wave sensor for detecting a contact state between the exhaust or the intake valve and the valve seat of the valve train of the vehicle engine (see fig.1) of the acoustic wave generating means (see fig.1, 3) also including an acoustic wave oscillator, a first amplifier (56) for amplifying the acoustic wave of the acoustic wave oscillator (53, cpu), the sound emitting device for emitting the acoustic wave of the first amplifier (56), the sound emitting device being a speaker (see col.2 line 15-col.3 line 5).

7. Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Tanaka (US PAT. 5,446,790) in view of Tomisawa (US PAT. 5,850,458).

Consider claim 5 Tanaka does not clearly teaches the acoustic wave sensing part comprises a condenser microphone for sensing the acoustic wave.

However, Tomisawa teaches the acoustic wave sensing part comprises a condenser microphone for sensing the acoustic wave (see fig.7, 46 col.6 lines 43-65).

Therefore, it would have been obvious to one of ordinary skill in the art to utilize the teaching of Tomisawa into Tanaka to provide an intake sound control system for friendly using.

8. Claims 13-14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tanaka (US PAT. 5,446,790) in view of Everingham (US PAT. 5,828,759).

Consider claim 13 Tanaka teaches an acoustic wave sensor for detecting a contact state between an exhaust or an intake valve and a valve seat of a valve train of a vehicle engine comprising:

an acoustic wave generating means (see fig.1, 3) and an acoustic wave sensing means (4), said acoustic wave generating means (3) including an acoustic wave oscillator (53, CPU), a first amplifier (56, output circuit) for amplifying the acoustic wave of the acoustic wave oscillator, and a speaker for diverging the acoustic wave of the first amplifier (see col.2 line 15-col.3 line 5); and a sound shielding member adjacent to the speaker (see fig.1, 3), but Tanaka does not clearly teach the sound shielding member being separately mounted on a port part for preventing the acoustic wave from leaking.

However, Everingham teaches the sound shielding member (see fig.1, 22 (speaker enclosure)) being separately mounted on a port part for preventing the acoustic wave from leaking (see col.2 line 20-59).

Therefore, it would have been obvious to one of ordinary skill in the art to utilize the teaching of Tanaka into the teaching of Everingham to provide an active noise or sound reducing system that is more effective in reducing internal combustion engine noise.

Consider claim 14, Everingham teaches the acoustic wave sensing part comprises a condenser microphone (see fig.1, 42) for sensing the acoustic wave (see col.2 line 60-col.3 line 9).

9. Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Tanaka (US PAT. 5,446,790) as modified by Izutani (US PAT. 5,664,548) as applied to claim 4 above, and further in view of Everingham (US PAT. 5,828,759).



Consider claim 6 Tanaka and Izutani clearly teach a sound shielding member, where said speaker is installed, is separately mounted to a port part for preventing the acoustic wave from leaking outside of the manifold.

However, Everingham teaches a sound shielding member (see fig.1,22 (speaker enclosure)), where said speaker (30) is installed, is separately mounted to a port part for preventing the acoustic wave from leaking outside of the manifold (see col.2 line 20-59)

Therefore, it would have been obvious to one of ordinary skill in the art to utilize the teaching of Tanaka and Izutani into the teaching of Everingham to provide an active noise or sound reducing system that is more effective in reducing internal combustion engine noise.

10. Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over Tanaka (US PAT. 5,446,790) as modified by Tomisawai (US PAT. 5,850,458) and Fischer (US PAT.5,748,748) as applied to claim 3 above, and further in view of Izutani (US PAT. 5,664,548).

Consider claim 8 Tanaka teaches the acoustic wave sensor for detecting a contact state between the exhaust or the intake valve and the valve seat in the cylinder body (see fig.1 ,11) of the vehicle engine, wherein a speaker (see fig.1, 3) is installed at a bending portion of a tubular passage, but Tanaka does not clearly teaches a acoustic wave sensing part is installed at a site under the contact surface between the exhaust or the intake valve and the valve seat.

However, Izutani teaches a acoustic wave sensing part (see fig.1, 17) is installed at a site under the contact surface between the exhaust (83) or the intake valve (93) and the valve seat (83) (see col.6 line 10-20).

Therefore, it would have been obvious to one of ordinary skill in the art to utilize the teaching of Tanaka, Tomisawa and Fischer into the teaching of Izutani to provide a trouble-detection apparatus, for egr system comprising an EGR control valve in an EGR passage, which is capable of correctly detecting trouble in the EGR system by the detection of clogging of the EGR passage, irrespective of the pressure variation in the intake system in accordance with the rotation speeds or loads of the engine.

11. Claim 12 is rejected under 35 U.S.C. 103(a) as being unpatentable over Tanaka (US PAT. 5,446,790) as modified by Izutani (US PAT. 5,664,548) as applied to claims 10-11 above, and futher in view of Tomisawa (US PAT. 5,850,458) and Fischer (US PAT. 5,748,748).

Consider claim 12, Tanaka and Izutani do clearly teach the acoustic wave sensing means also including a second amplifier for amplifying the electric signal of the acoustic wave sensing part, and a display part for displaying a signal generated by the second amplifier.

However, Tomisawa teaches the acoustic wave sensing means (see fig.8, 46) also including a second amplifier (see fig.8, 51) the electric signal of the acoustic wave sensing part (46) (see col.6 line 44-col.7 line 15),

Therefore, it would have been obvious to one of ordinary skill in the art to utilize the teaching of Tanaka and Izutani into Tomisawa to provide an active noise reducing method for an automotive vehicle more efficiency.

On the other hand, Fischer teaches a display part for displaying (see fig.5, 258) a signal generated by the second amplifier (218, see col.10 line 55-col.11 line 25).

Therefore, it would have been obvious to one of ordinary skill in the art to utilize the teaching of Tanaka and Izutani into Fischer to provide a conventional display device for friendly using.

### ***Response to Arguments***

12. Applicant's arguments with respect to claims 1-14 have been considered but are moot in view of the new ground(s) of rejection.

### ***Conclusion***

13. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not

mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

14. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Geddes (US PAT5,063,598) and Yokota (US PAT. 5,426,705) are recited to show other related the acoustic wave sensor for detecting contact state between a valve and a valve seat for a vehicle.

15. Any response to this action should be mailed to:

Commissioner of Patents and Trademarks

Washington, D.C. 20231

or faxed to: (703) 872-9306

Hand-delivered responses should be brought to Crystal Park II, 2121 Crystal Drive, Arlington, VA., Sixth Floor (Receptionist).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Lao,Lun-See whose telephone number is (703) 305-2259. The examiner can normally be reached on Monday-Friday from 8:00 to 6:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Curtis Kuntz, can be reached on (703) 305-4708.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Technology Center 2600 whose telephone number is (703) 306-0377.


Lao,Lun-See

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